

Patent Claims

1. Rotor for a turbo machine, in particular for a gas turbine, comprising a rotor base body (11) and several rotor blades arranged over the circumference of the rotor base body (11), in which case the rotor based body (11) is manufactured of an MMC composite material, and in which case the rotor blades are an integral part of the rotor, characterized in that the rotor base body (11) is configured in the shape of a ring, in which case the ring-shaped rotor base body (11) comprises, in a radially internal section (12), at least one groove-like recess (16) which is filled radially on the inside with fibers exhibiting tensile strength.
2. Rotor as in Claim 1, characterized in that, several recesses (16) filled with fibers are arranged successively in a row in axial direction (14) of the rotor base body (11).
3. Rotor as in Claim 1 or 2, characterized in that the or each recess (16), starting from a radially internal generated surface (17) of the rotor base body (11), extends radially into the radially internal section (12) of the rotor base body (11) and ends at a distance from a radially external section (13) of the rotor base body (11) which is used to provide the rotor blades.
4. Rotor as in one or more of the Claims 1 through 3, characterized in that the or each recess (16) has a rounded or arcuate profile on a radially external boundary (18) of said recess.
5. Rotor as in one or more of the Claims 1 through 4, characterized in that the or each recess (16) has a greater dimension in radial direction (15) than in axial direction (14).

6. Rotor as in one or more of the Claims 1 through 5, characterized in that the or each recess (16) is limited on the radially internal end by at least one cylindrical shell (19) of matrix material.
7. Rotor as in one or more of the Claims 1 through 5, characterized in that the or each recess (16) has a conical cross-section in such a manner that the or each recess (16) is tapered, starting from the radially internal end, in radial direction.
8. Method for the manufacture of an integrally bladed rotor for a turbo machine, in particular for a gas turbine, comprising the following steps:
 - a) Provision of a ring-shaped rotor base body (11) of metal matrix material with a radially internal section (12) and with a radially external section (13), in which case the radially external section (13) is used for the provision of rotor blades,
 - b) Application of at least one groove-like recess (16) in the radially internal section (12) of the rotor base body (11), in which case the or each recess (16) is open on one radially internal end and ends at a distance from the radially external section (13),
 - c) Filling of the or each groove-like recess (16), from a radially internal direction, with fibers exhibiting tensile strength,
 - d) Compression of the rotor based body (11) of metal matrix material and of the fibers exhibiting tensile strength by applying pressure at high temperature.
9. Method as in Claim 8, characterized in that, after having filled the or each recess (16) with fibers exhibiting tensile strength, the or each recess (16) is closed in a gas-tight manner on the radially internal end by at least one cylindrical shell (19) of matrix material by applying a vacuum.
10. Method as in Claim 9, characterized in that the thusly provided gas-tight capsule is compressed by hot isostatic pressing.

11. Method as in one or more of the Claims 8 through 10, characterized in that, following the compression, the rotor blades are machined, in particular by milling, in the region of the radially external fiber-free section (13).